

WHAT IS CLAIMED IS:

1. A method of detecting a biological molecule, comprising reacting a biological molecule sample with an organic EL-dye and measuring the  
5 fluorescence of the biological molecule sample labeled with the organic EL-dye.

2. The detection method according to claim 1, wherein an amide bond, imide bond, urethane bond, ester bond, guanidine bond or thiourea bond is formed between said organic EL-dye and said biological molecule.

10

3. The detection method according to claim 2, wherein prior to reaction with said biological molecule, any one reactive group selected from the group consisting of an isocyanate group, isothiocyanate group, epoxy group, halogenated alkyl group, triazine group, carbodiimide group and active ester  
15 carbonyl group is introduced into said organic EL-dye.

20

4. The detection method according to claim 1, wherein any one selected from the group consisting of nucleic acids, proteins, peptides and saccharides is used as said biological molecule sample.

5. A method of detecting a biological molecule, comprising labeling of a biological molecule sample with a labeling dye comprising a 5-membered ring compound having a conjugate system and containing one or more hetero atom(s), selenium atom(s) or boron atom(s) and measurement of the  
25 fluorescence of the labeled biological molecule sample.

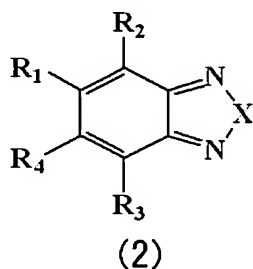
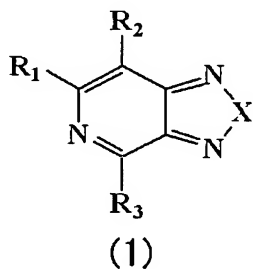
6. The detection method according to claim 5, wherein said labeling dye comprises a condensed poly-ring compound consisting of said 5-membered ring compound and a 6-membered ring compound having a conjugate system.

5

7. The detection method according to claim 5, wherein said 5-membered ring compound is an azole derivative or imidazole derivative.

8. The detection method according to claim 7, wherein said azole derivative is a compound of the following general formula (1) or (2):

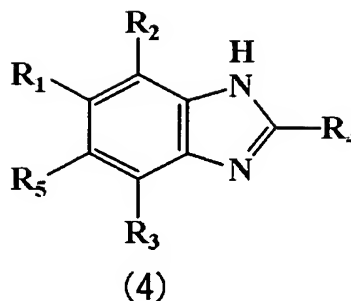
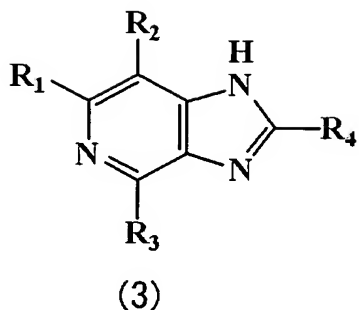
10



(wherein, R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> represent each independently an aromatic hydrocarbon group, hydrocarbon group, heterocyclic group or aromatic group containing a hetero atom in the ring, optionally having a substituent such as a hydrogen atom, halogen atom, hydroxyl group, cyano group or sulfonyl group and the like, and X represents a nitrogen atom, sulfur atom, oxygen atom or selenium atom, optionally having a substituent.).

15

9. The detection method according to claim 7, wherein said imidazole derivative is a compound of the following general formula (3) or (4):



(wherein, each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> represents an aromatic hydrocarbon group, hydrocarbon group, heterocyclic group or aromatic group containing a hetero atom in the ring, optionally having a substituent such as a hydrogen atom, halogen atom, hydroxyl group, cyano group or sulfonyl group and the like, and R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> may be the same or different.).

10. The detection method according to claim 5, wherein prior to reaction with said biological molecule, any one reactive group selected from the group consisting of an isocyanate group, isothiocyanate group, epoxy group, halogenated alkyl group, triazine group, carbodiimide group and active ester carbonyl group is introduced into said organic EL-dye.

11. A labeling dye used for detection of a biological molecule by measurement of fluorescence, wherein the dye includes an organic EL-dye having a reactive group to bind to a biological molecule.

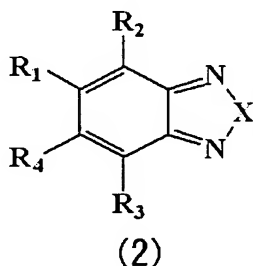
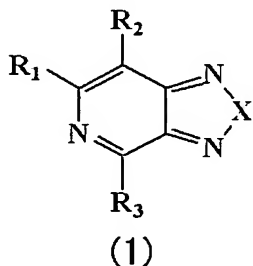
12. The labeling dye according to claim 11, wherein said reactive group is any one selected from the group consisting of a carboxyl group, isocyanate group, isothiocyanate group, epoxy group, halogenated alkyl group,

triazine group, carbodiimide group and active ester carbonyl group.

13. The labeling dye according to claim 11, wherein said organic EL-dye is a compound containing a 5-membered ring compound having a conjugate system in which the 5-membered ring compound contains one or more hetero atom(s), selenium atom(s) or boron atom(s).

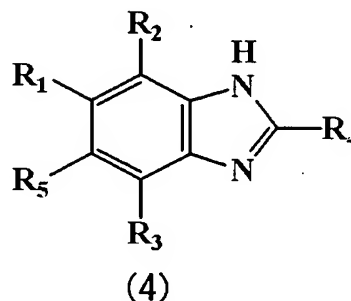
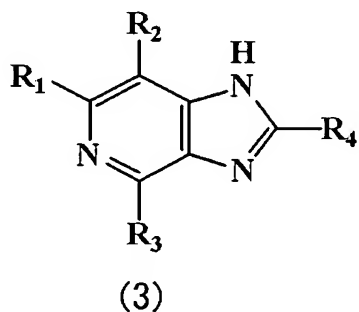
14. The labeling dye according to claim 13, wherein said organic EL-dye is a condensed poly-ring compound consisting of said 5-membered ring compound and a 6-membered ring compound having a conjugate system.

15. The labeling dye according to claim 14, wherein said azole derivative is a compound of the following general formula (1) or (2):



(wherein, R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> represent each independently an aromatic hydrocarbon group, hydrocarbon group, hetero-cyclic group or aromatic group containing a hetero atom in the ring, optionally having a substituent such as a hydrogen atom, halogen atom, hydroxyl group, cyano group or sulfonyl group and the like, and X represents a nitrogen atom, sulfur atom, oxygen atom or selenium atom, optionally having a substituent.).

16. The labeling dye according to claim 14, wherein said imidazole derivative is a compound of the following general formula (3) or (4):



(wherein, each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> represents an aromatic hydrocarbon group, hydrocarbon group, hetero-cyclic group or aromatic group containing a hetero atom in the ring, optionally having a substituent such as a hydrogen atom, halogen atom, hydroxyl group, cyano group or sulfonyl group and the like, and R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> may be the same or different.).

17. A labeling kit for biological molecule, comprising an organic EL-dye for labeling a biological molecule.

18. The labeling kit according to claim 17, wherein said organic EL-dye has any one reactive group selected from a carboxyl group, isocyanate group, isothiocyanate group, epoxy group, halogenated alkyl group, triazine group, carbodiimide group and active ester carbonyl group.

19. The labeling kit according to claim 17, wherein said organic EL-dye is a compound containing a 5-membered ring compound having a

conjugate system in which the 5-membered ring compound contains one or more hetero atom(s), selenium atom(s) or boron atom(s).

20. The labeling kit according to claim 17, wherein said organic  
5 EL-dye is a condensed poly-ring compound consisting of said 5-membered ring compound and a 6-membered ring compound having a conjugate system.